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2. Its breadth on minor axis was greater than what ought to be expected from its breadth on major axis; indeed, along the minor axis, it appeared broader than the outermost ring, occupying fully three-tenths of the total breadth of the system.

3. Its inner edge in front of *Saturn* was much more concave than the outer edge; more so than would be anticipated from the divergence of two concentric elliptical arcs. Meantime, the inner edge across the planet did not seem to form the continuation of the edge projected on the sky. But this observation was rendered exceedingly difficult and uncertain on account of the low altitude of *Saturn* and the concomitant strong absorption of the "dark" ring's feeble light.

Now, at the date of these observations we had

$$l-l'=0^\circ 43',$$

a value which, taken in connection with the facts enunciated, tends to militate against the notion of a *dark* ring. Owing, however, to the smallness of $\Delta=43'$, these results cannot be considered decisive, almost grazing, as they do, observational errors. The question will be elucidated by the greater values of Δ in coming years.

Observatoire Flammarion, Juvisy (S.-et-O.):
1900 *October* 12.

Occultations of Saturn, 1900 *June* 13 *and September* 3, *observed at the Radcliffe Observatory, Oxford.*

(*Communicated by the Radcliffe Observer.*)

The following observations of two occultations of *Saturn* were made at this Observatory:—

1900 *June* 13.

Phenomena.	Observer.	Reappearance (at Dark Limb of Moon). Observed G.M.T.
Ring—		h m s
1st trace	R.	10 49 51·1
2nd contact	,,	10 50 1·6
Ball—		
1st contact	,,	10 50 20·0
Ring—		
3rd contact	,,	10 51 3·9
Last ,,	,,	10 51 11·9

Observer's Remarks.

Saturn very faint; reappeared near bright, but defective,

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limb of the Moon. Observations made with the Barclay Equatorial, using power 90.

1900 *September* 3.

Phenomena.	Disappearance (at Dark Limb of Moon). Observed G.M.T.					Reappearance (at Bright Limb of Moon). Observed G.M.T.					Reference to Remarks.
	A. A. R.			W.	R.	A. A. R.			W.	R.	
Ring—	h	m	s	s	s	h	m	s	s	s	
1st contact	7	12	...	50·2	50·4	8	8	50·8	57·3	49·2	(*a*)
2nd ,,	7	12	...	58·5	56·9	8	8	54·8	63·1	55·2	
Ball—											
1st contact	7	13	2·5	2·9	1·9	8	9	7·3	10·0	3·1	(*b*)
Bisection	7	13	...	24·3	...	8	9	...	32·2	...	
Last contact	7	13	56·4	57·3	54·2	8	9	41·2	47·9	33·1	
Ring—											
3rd contact	7	14	12·4	10·7	12·7	8	9	45·2	56·5	36·6	(*c*)
Last ,,	7	14	31·3	31·0	30·1	8	9	57·2	62·4	59·0	(*d*)

Observers' Remarks.

Disappearance :—

[A. A. R.] Thin cloud throughout. (*b*) Doubtful. (*c*) Possibly 1^s too early.

[W.] Observation very difficult, made through hazy cloud. No satellites visible. The points observed are those where the major axis of the ring would cut the ring and ball.

[R.] Images diffused; sky hazy. Observations difficult. (*a*) May be 1^s late. (*b*) A lingering contact.

Reappearance :—

[A. A. R.] (*a*) Likely to be good, as attention was concentrated at the very point of limb where planet reappeared. (*c*) May be a little too soon. The colour of ring and ball appeared much greyer than that of the Moon.

[W.] (*a*) Was looking exactly at place of reappearance. The light of *Saturn* looked ashy grey compared with the yellow disc of the Moon. The limbs of planet and Moon were much steadier than at disappearance. As the planet emerged obliquely, the same points along the axis of the ring were observed as at disappearance. After emergence, the major axis of *Saturn's* ring, when produced to cut the limb of the Moon, formed with a tangent to the Moon's limb (drawn at the point of intersection) an angle of about 30°.

[R.] Observations difficult. (*a*) Ring faint, but first trace caught. This observation considered satisfactory. (*d*) Contact lingered. Part of the ring appeared to be thinly veiled by a narrow band of shade adjacent to the Moon's limb.

[*Note added later.*—(*c*) The observer considers his observation of the 3rd contact of ring entitled to but little weight.]

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At reappearance, both A. A. R. and R. have, for the 1st and 2nd contacts with the ring and for the 1st contact with the ball, observed the moment at which any part of the outline of ring or ball first emerged from behind the limb of the Moon; and for the 2nd contact with the ball and the 3rd and 4th contacts with the ring the first moments at which the limb of the Moon and the outline of the ring or ball were completely separated; whereas W. noted the times of emergence of the several points where the major axis of the ring cut the ring and ball.

Observers (September 3):—

[A. A. R.] Dr. Rambaut. Barclay equatorial, 10-inch aperture. Powers: 180, disappearance; 85, reappearance.

[W.] Mr. W. Wickham. Marlborough telescope, 3·2-inch. Power, 75. Observations recorded on the chronograph.

[R.] Mr. W. H. Robinson. Heliometer, 7·5-inch (one segment only). Powers: 200, disappearance; 80, reappearance.

Radcliffe Observatory, Oxford:
1900 *November* 6.

Occultation of Saturn, 1900 *September* 3. By the Rev. S. J. Johnson, M.A.

The occultation of *Saturn* on this evening took place under similar circumstances to that which I witnessed on 1870 September 30, the sky being on both occasions singularly clear, the disappearance being about half an hour after sunset, the Moon not far from the first quarter, and the objects nearly at the same point in the sky.

I employed power of 100 on 3¾-inch equatorial.

At $7^h\ 10^m\ 17^s$ the preceding ansa of the ring already in contact with the Moon's limb.

$7^h\ 11^m\ 1^s$. Globe of *Saturn* reached.
$7^h\ 11^m\ 54^s$. Globe covered.
$7^h\ 12^m\ 30^s$. Following ansa of ring immerged.

At the reappearance, owing to the dull faint colour of the planet, it had begun to come out a few seconds before being distinctly perceived.

At $8^h\ 6^m\ 53^s$. Globe began to emerge.
$8^h\ 7^m\ 40^s$. Globe entirely emerged.
$8^h\ 7^m\ 59^s$. Last contact with following ansa of ring.

The planet disappeared gradually with uniform motion, and clear definition. At emersion, the difference of brilliancy between the bright yellow limb of the Moon and the grey disc of the planet was most striking. One could not but be impressed with the marked contrast with the brightness of *Jupiter* when close to the Moon at his occultation four years ago last June.

Melplash Vicarage, Bridport:
November 2.